

What is claimed is:

- Sub A17
1. A channel estimation method for a digital telecommunication station, comprising the steps of:
- detecting a frequency correction burst by scanning of a wanted channel;
 - 5 providing time and frequency synchronizations by using said frequency correction burst;
 - receiving a synchronization burst;
 - cross correlating received training sequence contained in said synchronous burst with a selected
 - 10 subset of an expected training sequence to obtain a channel estimate;
 - deriving a frequency error estimate from said channel estimate;
 - correcting the frequency error of the received
 - 15 burst in accordance with said frequency error estimate;
 - equalizing the received synchronous burst; and
 - providing time and frequency synchronizations again by using said corrected frequency correction burst.
2. A channel estimation method according to claim 1, wherein the received training sequence is part of the signal within a synchronization burst transmitted by a base station of a cellular telephone
- 5 network.

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3. A channel estimation method according to claim 2, wherein the received training sequence is the 64 bit training sequence of the GSM system.

5 4. A channel estimation method according to claim 3, wherein the selected subset comprises the 21st through to the 44th symbols of the training sequence.

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10 5. A channel estimation method according to claim 1, wherein the training sequence is an adaptive training sequence.

15 6. A channel estimation method according to claim 2, wherein the training sequence is an adaptive training sequence.

20 7. A channel estimation method according to claim 1, wherein the selected subset is an adaptive subset.

8. A channel estimation method according to claim 2, wherein the selected subset is an adaptive subset.

25 9. A channel estimation method according to claim 6, wherein the selected subset is an adaptive

subset.

10. A channel estimation method according to
claim 1, wherein the frequency error estimate is
5 obtained by a Doppler tracking phase locked loop.

11. A channel estimation method according to
claim 2, wherein the frequency error estimate is
obtained by a Doppler tracking phase locked loop.

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